

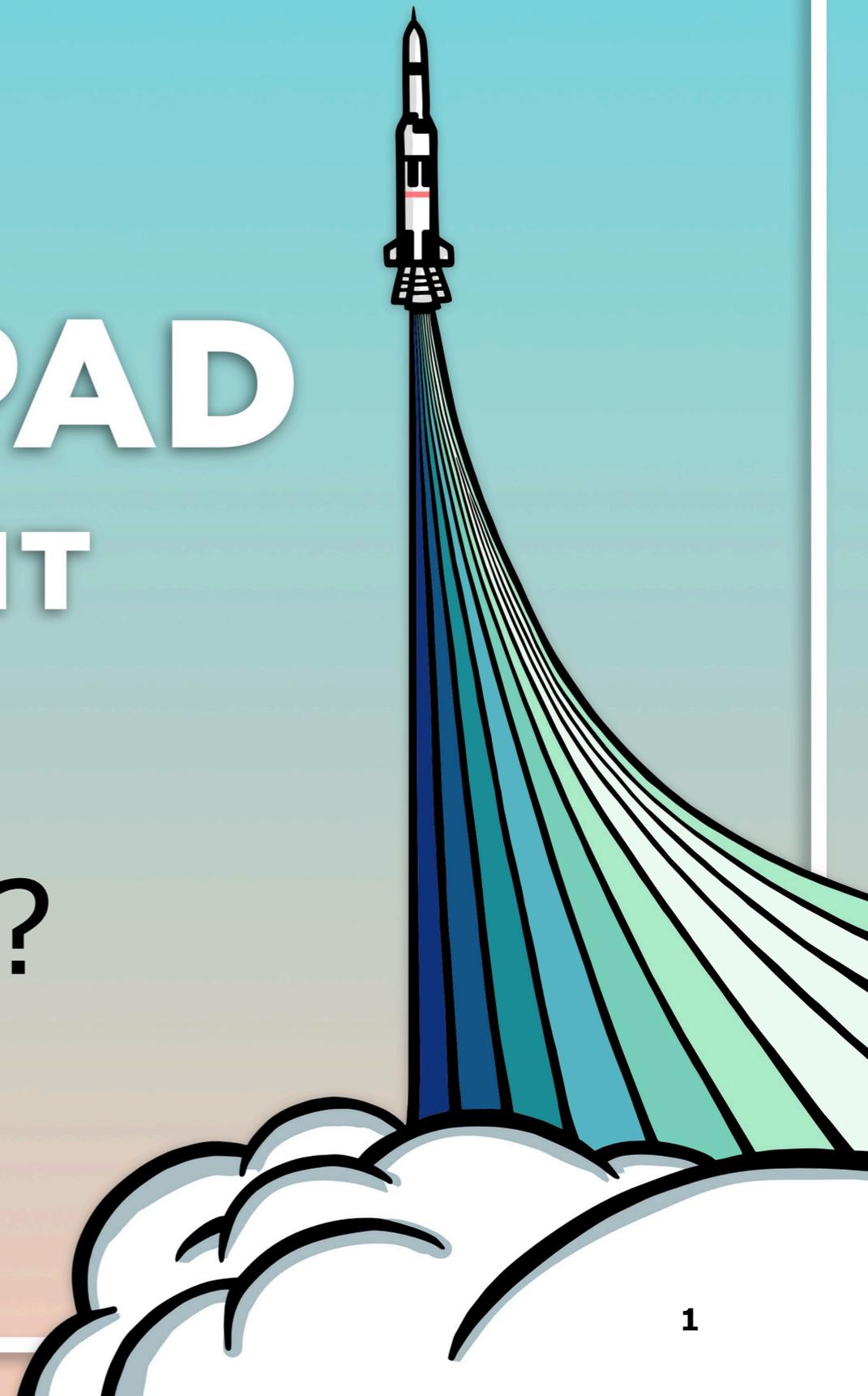
PI LAUNCHPAD

VIRTUAL SUMMIT

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What is a WBS?

Keith Walyus - GSFC





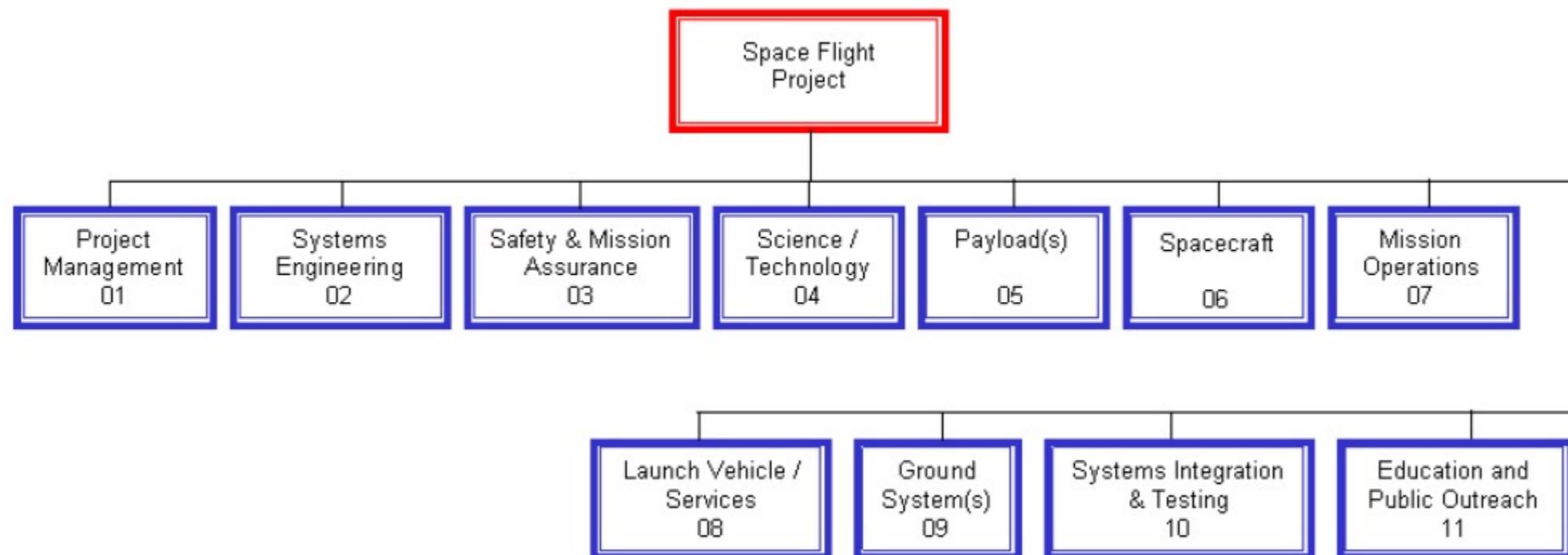
What is a WBS?

- Definition: A deliverable oriented hierarchical decomposition of the work to be executed by the project team
- It's really a planning structure used by the project management team to organize and track work
 - The WBS should represent the entire scope of work for the project
 - It is used actively during both planning and implementation phases
 - A clear WBS will also assist external reviewers to assess your project
- NASA uses a standard WBS template, but each project will modify the template based on their project particulars
- NASA has produced the "NASA Work Breakdown Structure (WBS) Handbook"; January 2018 for reference



WBS Structure

- NASA uses a standard WBS profile for projects:



- The project will further develop sub-sections to better define and help track the mission
 - Should be decomposed to the level necessary to accurately track costs and work progress



Actual WBS Example

(Subsection of Payload WBS)

306615.05	Payloads
306615.05.01	GSFC-Electrical
306615.05.01.01	GSFC-GEDI Electrical Systems
306615.05.01.02	GSFC-GEDI Digitizer Unit
306615.05.01.03	GSFC-GEDI Integrated Electronics Unit
306615.05.01.04	GSFC-GEDI Laser Electronics Unit
306615.05.01.05	GSFC-GEDI Harness
306615.05.01.06	GSFC-GEDI PCU
306615.05.02	GSFC-Mechanical
306615.05.02.01	GSFC-GEDI Mechanical Systems
306615.05.02.02	GSFC-GEDI Primary Structure
306615.05.03	GSFC-Thermal
306615.05.03.01	GSFC-GEDI Thermal Systems
306615.05.03.02	GSFC-GEDI Thermal Hardware
306615.05.04	GSFC-Optics
306615.05.04.01	GSFC-GEDI Optical Systems
306615.05.04.02	GSFC-GEDI Optical Receiver Telescope Ass
306615.05.04.03	GSFC-GEDI Optical Sub-Assemblies
306615.05.04.04	GSFC-Fiber Optic Support
306615.05.05	GSFC-Laser
306615.05.05.01	GSFC-GEDI Laser
306615.05.05.02	GSFC-GEDI Beam Dithering Units
306615.05.06	GSFC-Detector
306615.05.06.01	GSFC-GEDI Detector Systems
306615.05.06.02	GSFC-GEDI Detector Contract - Detectors
306615.05.06.03	GSFC-GEDI Detector Contract - Electronic

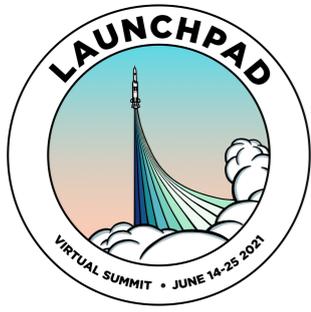
- This is just a subset of the payload WBS.
- Each section will be developed to their requisite level of detail



WBS Dictionary

- The WBS dictionary provides the definition for each of the elements in the WBS
- It is necessary to ensure that all elements of the mission are completely accounted for:

5.01.02	GSFC-GEDI Digitizer Unit	Manage and oversight of the full product development of the qualified Digitizer Unit (DU) electronics. Includes parts, fabrication, non-flight models, board thermal and structural analyses, board level testing, board specific GSE, etc. Includes design, fabrication and qualification of the DU enclosure and related hardware.
5.01.03	GSFC-GEDI Integrated Electronics Unit	Manage and oversight of the full product delivery of the qualified Integrated Electronics Unit (IEU) electronics. Includes parts, fabrication, non-flight models, board thermal and structural analyses, board level testing, board specific GSE, etc. Includes design, fabrication and qualification of the IEU enclosure and related hardware.



Points to Keep In Mind

- Keep WBS titles clear
 - Provide clear linkage to WBS dictionary
- Separate:
 - Different organizations (e.g., GSFC, JPL, etc.)
 - Companies of significant procurements
- Clearly delineate phase E funding



ESD Accommodations

- On (some/all) Earth Venture missions, unallocated future expenses (UFE) funding is not available to projects
 - If projects exceed their cost cap, they are in danger of termination
- However, the ESSP Program will make available accommodations to account for external cost-driving factors not in the project's control (e.g., post-selection, a change in available power on JEM-EF)
 - As new problems occur, it may take time to assess the costs resulting from the change
 - Changes may take time to implement
- ESSP is very reasonable and will reimburse the project for these costs, but they want the project to keep a strict accounting of each of these problems
 - All costs had to be justified with the Program
 - Program understood that the costs were an estimate and costs estimates may need to be updated (with justification)
- Easiest solution is to open a separate WBS line for each accommodation



Summary

- WBS is critical for communicating the project work activities to the team and external partners
 - Needs to be defined down to the level necessary for tracking cost and work progress
 - Needs to encompass the whole project
 - Needs to be clearly defined
 - Needs to differentiate between organizations
 - Need to define work adequately in the WBS dictionary
- Accommodations for ESSP missions should have their own WBS entry
- Further information available in the "NASA Work Breakdown Structure (WBS) Handbook"